Bonneville Power Administration
Fish and Wildlife Program FY99 Proposal

Section 1. General administrative information

Implement Eastern Washington Model Watershed Plans

Bonneville project number, if an ongoing project 9202602

Business name of agency, institution or organization requesting funding
Washington State Conservation Commission

Business acronym (if appropriate) WCC

Proposal contact person or principal investigator:

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Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
Asotin County Conservation District	725 6th Street, Suite 102	Clarkston, WA 99403-2001	Brad Johnson
Columbia Conservation District	202 South Second Street	Dayton, WA 99328-1327	Terry Bruegman
Pomeroy Conservation District	PO Box 468	Pomeroy, WA 99347-0468	Duane Bartels

NPPC Program Measure Number(s) which this project addresses.
7.7.b.1; 7.7.b.2: 7.7.b.3

NMFS Biological Opinion Number(s) which this project addresses.
NA

Other planning document references.
Snake River Recovery Plan; Asotin Creek Model Watershed Plan; Tucannon River Model Watershed Plan; Pataha Creek Model Watershed Plan

Subbasin.
Asotin Creek, Tucannon River, Pataha Creek tributaries to Snake River

Short description.
Fund model watershed technical lead positions for the implementation phase of the Asotin Creek, Tucannon River, and Pataha Creek model watershed plans.

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
X	Anadromous fish	*	Construction	X	Watershed
*	Resident fish	*	O & M		Biodiversity/genetics
*	Wildlife		Production		Population dynamics
	Oceans/estuaries		Research	*	Ecosystems
	Climate	*	Monitoring/eval.		Flow/survival
	Other	X	Resource mgmt		Fish disease
		*	Planning/admin.		Supplementation
			Enforcement	*	Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.
Model watershed technical leads, implement watershed plans

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship
9401800	WA Model Watershed Habitat Projects	Funds on-the-ground implementation of model watershed plans

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj		Task	

1,2,3	Objective	a,b,c	Task
1	Implement planned projects as outlined in Asotin Creek, Tucannon River, and Pataha Creek model watershed plans	a	Select projects for construction in FY 1999 which best protect and enhance fish habitat
		b	Work with Natural Resources Conservation Service (NRCS) to develop plans for selected sites
		c	Write biological assessments and submit through BPA to NMFS
		d	Develop agreements with landowners for construction of projects
		e	Secure required permits for project implementation
		f	Construct selected projects
2	Develop and implement a monitoring plan	a	Select sites
		b	Collect, analyze, and evaluate water samples; evaluate habitat monitoring plan
3	Conduct an information-education program related to each model watershed	a	Conduct informational meetings and educational tours for landowners and others
		b	Prepare news articles for local newspapers and/or publish a model watershed newsletter

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	10/1998	9/1999	70.00%
2	10/1998	9/1999	20.00%
3	10/1998	9/1999	10.00%
			TOTAL 100.00%

Schedule constraints.
Improving and maintaining critical habitat requires cooperation and long-term commitments between landowners, and state and federal agencies for watershed management. Cooperators need to know that long-term cost-share assistance will be available.

Completion date.
2005

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel	All budget objects are for the 12-month period 10/01/98 - 9/30/99	$103,920
Fringe benefits		$28,650
Supplies, materials, non-expendable property		$19,143
Operations & maintenance		$1,800
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel		$5,953
Indirect costs		
Subcontracts		
Other		
TOTAL		$159,466

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget	$166,194	$169,673	$176,807	$180,552
O&M as % of total	1.25%	1.20%	1.15%	1.10%

Section 6. Abstract

Project Goals and Objectives – In 1992, acting for the State of Washington, the Conservation Commission selected the Asotin County, Columbia, and Pomeroy conservation districts to act as lead agencies to prepare and implement plans for the Asotin Creek, Tucannon River, and Pataha Creek watersheds, respectively. The primary goal of these plans is to enhance the restore habitat for the Snake River spring chinook, Snake River fall chinook, summer steelhead, and bull trout.

Relevance to 1994 Columbia Fish and Wildlife Program – The model watersheds relate to 7.7B.2 and 7.7B.3 in that specific fish habitat problems have been identified, and measures are being taken to correct them through implementation of the three model watershed plans. The habitat problems include: high stream temperature, lack of resting

and rearing pools containing large woody debris, sediment deposition on spawning gravels, high fecal coliform counts, and streambank and geomorphic stability.

Sound Scientific Principles – The problem sites and needed remedial actions were identified by technical staff of the Washington State departments of Fisheries and Wildlife (WDFW), Natural Resources (DNR), and Ecology, and the federal USDA Natural Resources Conservation Service (NRCS), and the US Forest Service (USFS).

Timeframe – By the year 2000, reliable habitat and water quality databases will be in place, and biological results will be available. Completion date is estimated to be 2005.

Monitoring and Evaluation – The model watershed technical leads, together with the technical staff of agencies mentioned above, are monitoring status of target stocks, availability of suitable habitat, and success of the projects.

Section 7. Project description

a. Technical and/or scientific background.

During plan preparation, each model watershed technical lead made extensive use of existing literature (cited in each model watershed plan) on in-stream fish habitat, historical water quality and fish data, technical reports from state and federal natural resource agencies, and personal communications with local residents intimately familiar with each watershed.

b. Proposal objectives.

The three model watershed technical leads are responsible for facilitating implementation of the goals and objectives identified in their respective model watershed plans.

1. Asotin Creek Model Watershed

    a. Instream structures provide the following components: resting and rearing pools with large woody debris; interstitial spaces between boulders; enhanced width to depth ratio; added meanders; added complex fish habitat; and sorted gravel below the structures.

    b. Lower water temperatures through use of bio-engineering and riparian plantings

    c. Reduced sedimentation through: fencing; well and spring developments for off-stream watering devices; installation of terraces, sediment basins, filter strips, grassed waterways and forestland plantings.

d. Reduced fecal coliform levels through riparian fencing; filter strips; and off-stream watering devices.

2. Tucannon River Model Watershed

a. Instream structures provide the following components: resting and rearing pools with large woody debris; interstitial spaces between boulders; enhanced width to depth ratio; added meanders; added complex fish habitat; and sorted gravel below the structures.

b. Lower water temperatures through use of bio-engineering and riparian plantings.

c. Reduced sedimentation through streambank and geomorphic stability and upland conservation practices.

d. Reduced fecal coliform levels through riparian fencing; riparian enhancement; and off-stream watering devices.

3. Pataha Creek Model Watershed

a. Instream structures provide the following components: resting and rearing pools with large woody debris; interstitial spaces between boulders; enhanced width to depth ratio; added meanders; added complex fish habitat; and sorted gravel below the structures.

b. Lower water temperatures through use of bio-engineering and riparian plantings

c. Reduced sedimentation through: fencing; well and spring developments for off-stream watering devices; installation of terraces, sediment basins, filter strips, grassed waterways and forestland plantings.

d. Reduced fecal coliform levels through riparian fencing; filter strips; and off-stream watering devices.

c. Rationale and significance to Regional Programs.

The rationale behind the ongoing Eastern Washington Model Watersheds is based on the goals found in the 1994 Fish and Wildlife Program, part 7.7B, “Model Watersheds.” Specifically this section speaks to the “bottom up” planning done by the model watershed Technical Leads as they prepared their watershed plans for implementation. It also speaks to implementation of priority on-the-ground actions that address key limiting factors for salmon and steelhead production, which has been ongoing for the past several years.

There is a synergistic relationship between this ongoing proposal and Project No. 9401800, "Washington Model Watershed Habitat Projects," which provides funding for implementation of the priority actions identified in each model watershed plan.

Implementation of the goals and objectives found in the three model watershed plans will effectively address habitat enhancement for ESA-listed weak populations without adversely affecting biological diversity. In fact, the goals in each plan emphasize total watershed health. The dynamic structure of the model watershed plans relies on adaptive management techniques as restoration progresses, with the ultimate outcome being watershed health at a self-sustaining level for ESA-listed species (see Attachment 1, Eastern Washington Model Watershed Organizational Flow Chart).

d. Project history

In 1992, the Washington State Conservation Commission entered into a contract with the Bonneville Power Administration (BPA) for the development and implementation of three model watershed plans in the southeastern part of the state. The watersheds selected were Asotin Creek, Tucannon River, and Pataha Creek (a tributary of the Tucannon).

These three watersheds were selected because they have been adversely impacted by human activities and catastrophic natural events such as floods and droughts. As a result, high stream temperatures, lack of quality resting and rearing pools, excessive sediment deposition in spawning gravels, and high fecal coliform levels plague all three watersheds. Only a remnant of the earlier salmon and trout populations use these waters.

The Asotin County, Columbia, and Pomeroy conservation districts were named lead agencies for these projects because of their strong connection with local landowners, and their ability to implement on-the-ground solutions to fish habitat problems. The NRCS staff in each of the district offices, as well as the NRCS Spokane State Office Watershed Planning Team, provide in-kind services in the form of technical assistance to help implement projects in each of the watersheds.

Each conservation district led a locally based process (based on the Coordinated Resource Management Process) that combined local concerns and knowledge with technology from several agencies to produce a credible watershed plan. This was accomplished through formation of landowner steering committees to represent the views and needs of the local communities, and technical advisory committees which included representatives from the affected private, state, and federal agencies and organizations. The technical advisory committees worked closely with the landowners' committees to identify local needs and concerns. Consequently, the model watershed plans meet private landowner objectives and achieve state and federal agency acceptance.

Asotin Creek Model Watershed Technical Leads have included Brian Sangster (1992-1995), Angie Reeves (1995-1996), and Brad Johnson (1996-present). Tucannon River

Model Watershed Technical Leads have included Art Sunderland (1992-1996) and Terry Bruegman (1996-present). Pataha Creek Model Watershed Technical Lead is Duane Bartels (1992-present).

From the beginning of the program, in October 1992, through September 30, 1997 BPA has provided $554,410 to the Commission to support the three model watershed technical lead positions.

During the same period, the Conservation Commission provided $900,000 in state grant dollars earmarked for model watershed program expenses and cost-sharing with private landowners. The Commission also provides state grant funds for general district operations on an annual basis, as well as special purpose funding for upland conservation practices to improve nonpoint water quality

e. Methods.

Specific tasks associated with the implementation of objectives as identified in Section 4 will be facilitated by the respective technical leads through their individual model watershed organizational structure. The organizational structures include: landowner steering committees; technical advisory committees; interdisciplinary teams; and opportunities for public input.

The committees and groups in this structure identify, assess, design, and prioritize projects for habitat enhancement. However, it is the technical leads who facilitate and coordinate project implementation. This work involves project plan development; biological assessment development and submission; landowner acceptance and agreement; securing contract resources (WSU and WDF&W water quality and habitat monitoring and Salmon Corps tribal contracts) and coordinating volunteers (students from local schools in each watershed) to insure implementation of habitat enhancement projects. The technical leads also insure that projects reflect the goals and objectives identified in their respective model watershed plans.

Retention of long-term habitat enhancements is expected as a result of plan and project implementation. Monitoring and evaluation assessments will provide guidance for structure enhancement through the adaptive management process.

Each model watershed plan identifies factors for monitoring and evaluation. These factors are the basis for pre and post-construction assessments for water quality and habitat enhancement. NRCS staff will evaluate and monitor projects for structure performance integrity.

On the Tucannon River Model Watershed, there has been a collaborative effort among the technical lead, the Landowner Steering Committee, the Technical Advisory Committee, and the WDF&W Snake River Lab to develop a monitoring and evaluation plan (see below).

TUCANNON MODEL WATERSHED
SITE MONITORING AND EVALUATION PLAN

At the request and direction of the Tucannon River Model Watershed Technical Lead, Landowner Steering and Technical Advisory Committees, the Tucannon Model Watershed Fish Habitat Enhancement Project Monitoring and Evaluation Plan, as described here, was developed by Snake River Lab (WDFW) personnel.

The monitoring and evaluation plan is based upon a short term approach due to time constraints and the variability of funding over the next ten years. Limited funding has been appropriated for 1998 project monitoring and evaluation. It is understood by the Landowner Steering and Technical Advisory Committees that if the plan and data are to withstand technical scrutiny and peer review, that a committed long term funding source will be required to develop and implement a solid multiple year monitoring and evaluation plan. Under the direction of the Tucannon Model Watershed Technical Lead, and acceptance by the Landowner Steering and Technical Advisory Committees, the Washington Department of Fish and Wildlife, in consultation with Del Groat of the USFS, will develop the experimental design of the monitoring and evaluation plan to look at long term project effectiveness. It is also proposed that the Snake River Lab (WDFW) receive funding through the Columbia Conservation District to conduct the work.

Monitoring and evaluation requires that an experimental design be developed and that hypothesis be established and tested. For the short term plan, we developed very basic hypothesis and methods to test them. There are three general categories that need to be monitored and evaluated: 1) physical site stability; 2) fish utilization, and 3) instream and riparian habitat.

WDFW will address and provide monitoring and evaluation for the second two categories. The NRCS will develop and provide a monitoring and evaluation plan for the first category, physical site stability. WDFW encourages that the following variables be addressed by the NRCS monitoring and evaluation plan for physical site stability: 1) bank erosion; 2) geomorphic channel stability; 3) stream bed aggradation/degradation, 4) substrate fines; 5) bank full width; 6) gradient; and that 7) photopoints be established.

WDFW also strongly encourages the deployment of sediment samplers to three locations: 1) Marengo; 2) immediately above the Pataha Creek; and 3) within one mile downstream of Pataha Creek.

Regarding fish use and habitat improvement, we hypothesize that the projects should improve the instream and riparian habitat quality and quantity, and that fish will utilize the sites to a greater extent than other locations in the river. We developed the following specific hypothesis and methods that will be used to test the hypothesis:

Hypothesis: Juvenile spring chinook salmon and steelhead trout utilize project sites (treatment) greater than similar pre-project control sites above Marengo.

Method: Every 1997 project site will be evaluated and juvenile fish density determined by snorkeling in 1998. The density in treatment sites will be compared to 1998 WDFW snorkel data (control sites) and t-test comparisons will be made to see if there is a statistical difference between control and treatment site juvenile fish densities.

Hypothesis: Adult steelhead trout utilize project sites (treatment) greater than similar pre-project control sites below Marengo, and there is a relationship between project type and fish catch rate.

Method: A team of experienced steelhead anglers will be established and will fish treatment and control sites below Marengo in the winter of 1998 - 1999. Catch rate (number of fish caught per hour) and the number of fish caught in the treatment and control sites will be recorded. The type of structure fished will also be recorded to determine if adult steelhead prefer a particular structure type (i.e. root wad revetment, barb, rock weir, vane, etc.) It is expected that catch rate will vary, and therefore be statistically difficult to determine a difference. However, due to limited funding, volunteer angling is the preferred method.

Hypothesis: Spring Chinook Salmon and Steelhead Trout prefer to spawn in project sites.

Method: Conduct redd surveys and record whether a redd was constructed in a project site or elsewhere. Habitat preference will be determined by dividing habitat use (# of redds in projects and # of redds in remainder of river) by habitat availability (cumulative length of projects and total length of river). For instance if 10 redds are constructed in 1 cumulative mile of projects, while 20 redds are constructed in the remaining 20 miles of river, then 10/1 = 10 and 20/20 = 1. So, in this example, fish prefer to spawn in projects 10 times greater than in other river locations.

Hypothesis: In-stream habitat quality is increased one year after project construction.

Method: The experimental design will be based on a before - after approach, as opposed to a treatment - control approach. Project sites will be identified and surveyed prior to construction in 1998, then in 1999 to determine if habitat quality increases after project construction. The river will be stratified into two strata: above Marengo and below Marengo. Basic habitat measurements will be recorded prior to project construction and again in the summer of 1999. Measurements will include: 1) pool number; 2) pool area; 3) maximum and average site depth; 4) pool quality; 5) quantitative and qualitative counts of woody debris; and 6) standard deviation of thalweg

depth.

Hypothesis: Stream water temperatures decrease over time (10 years).

Method: Continuous recording thermographs will be deployed in each of five general locations: 1) at WDFW Wooten Wildlife Area; 2) at bridge 14; 3) at Marengo; 4) at highway 12; and 5) at Starbuck. Summer time (July 1 through September 31) mean and maximum temperatures, and accrued thermal units will be compared from 1998 to 2008.

NOTE: Post-construction and long-term M&E will be conducted on 1996 projects, in relation to juvenile and adult salmonid population usage and habitat complexity as previously identified, depending on funding availability.

In the Asotin Creek Model Watershed, this type of plan was not developed due to problems obtaining an ESA Section 10 permit.

Summaries of projects installed in all three model watersheds are included with this proposal as Attachment 2.

f. Facilities and equipment.

The three conservation districts involved in the model watershed projects obtain help from the USDA Natural Resources Conservation Service (NRCS) through a working agreement called the "Memorandum of Understanding." Other USDA agencies currently working with the districts under such as agreement include: the US Forest Service; the US Department of the Interior; the Cooperative Extension Service; the US Army Corps of Engineers; the USDA Farm Services Agency; and the respective districts' county commissioners.

The NRCS provides the districts with in-kind services including: technical assistance; office space; office equipment; phone service; and vehicle use. Field and office equipment are readily shared and the districts are hooked up to the internet. The dollar value of these services exceeds $27,000 per each district. The relationships between the districts and USDA agencies are in good working order, and the facilities and equipment are suitable for the tasks at hand.

g. References.

Asotin Creek Model Watershed Plan, 1995.
Tucannon River Model Watershed Plan, (currently undergoing SEPA review)
Pataha Creek Model Watershed Plan, (scheduled for SEPA review first quarter 1998)

Section 8. Relationships to other projects

The budget for BPA Project No. 9401800 (WA Model Watershed Habitat Projects) directly relates to this proposal. The model watershed technical leads are responsible for what gets put on-the-ground in each watershed. Cooperation between the districts and landowners is good, and projects are being installed on private property with local support and buy-in.

However, landowners need to know that the long-term funding mentioned when this project began will continue to be available. The idea of locally led decisions as a "grassroots system" would be hard to sell to landowners who bought into an idea only to have the funding source withdrawn.

Section 9. Key personnel

Resume for Robert P. Bottman
Contact Person at WA State Conservation Commission
for the
Eastern Washington Model Watershed Program

Education: Bachelor of Science, Environmental Health, Montana State University, Bozeman, Montana, 1967. Graduate, Executive Management Development Program, University of Washington, 1986.

Current Employer: State of Washington, Conservation Commission, Olympia, WA

Current Responsibilities: Under the direction of the Commission's Executive Director, functions as manager for coordination of the agency's grants program, including the Centennial Clean Water Fund grants, the statewide Basic Funding Allocation grants program, the Puget Sound grants program, the Dairy Waste Management grants program, and special purpose grants programs as appropriate. The Grants Officer coordinates funding and development of environmental efforts related to nonpoint pollution and resource conservation projects for approximately 140 grants annually. The Commission's grants program for the 1997-99 Biennium has encumbered $11.3 million in state and federal funds.

FTE / Hours Spent on This Project: 0.05 FTE / 80 Hours Annually

Recent Previous Employment

* 1980-Present: Washington State Conservation Commission.
* 1971-1980: Washington State Department of Ecology.
* 1967-1971: U.S. Air Force.

Expertise: Seventeen years of budget, contract, grants, personnel and administrative experience with the State of Washington and its 48 local conservation districts. Prior to that, nine years of field work experience resolving point and non-point water pollution issues in southwest Washington.

Resume for Bradley J. Johnson
Asotin Creek Model Watershed Technical Lead

Education: Bachelor of Science degree in Biology, Dickinson State University, Dickinson, North Dakota, May 1992.

Current Employer: Asotin County Conservation District, Clarkston, WA

Current Responsibilities: As District Manager, responsible for performing management functions and administration of District and Model Watershed Programs established by the Asotin County Conservation District.

FTE / Hours Spent on This Project: 0.8 FTE / 1,381 Hours

Recent Previous Employment:

* July 1996-Present: District Manager, Asotin County Conservation District, Clarkston, WA
* March 1996-July 1996: Technician, Washington Department of Fish and Wildlife, Clarkston, WA. Responsible for checking fishermen and vouchering for the squawfish reward program. Dealt with fishermen on an individual basis and made sure the rules of the program were being followed.
* October 1992-March 1995: Fisheries Technician, University of Idaho, Moscow, ID. Responsible for organizing and supervising crews for data collection. Experience in gill netting, electrofishing, beach seining and data collection on the spawning ecology of brown trout and kokanee. Established and operated juvenile and fry migration traps. Organized entered and graphed fisheries data in preparation of technical reports.

Expertise: Self-motivated individual with enthusiasm and interest in fisheries habitat enhancement and restoration. Flexible to changes in the working environment with the ability to establish productive working relationships with people at all levels. We have completed two years of habitat enhancement and restoration projects on Asotin Creek, Washington. Three reports have documented project success and are included in the BPA Application. As a technician for the University of Idaho under David H. Bennett, the Snake River Strugeon Project, brown trout and kokanee Spawning Ecology Projects, Snake River fall chinook Project, and the Lower Granite squawfish and smallmouth bass Predation Project, Lower Granite Fish Larval Project, and Temperature Monitoring were some of my project involvement. The fisheries experience that I have received coupled with my background in agriculture and working relations with people have enabled me to work closely with local landowners on issues regarding enhancement and restoration of fisheries habitat within Asotin County.

Resume for Terry Bruegman
Tucannon River Model Watershed Technical Lead

Education: AA in Criminal Justice, Green River Community College, Auburn, WA, 1972

Current Employer: Columbia Conservation District, Dayton, WA

Current Responsibilities: As District Manager, responsible for performing management and administrative duties in relation to conservation district and Model Watershed programs as directed by the Columbia Conservation District board of supervisors.

FTE / Hours Spent on This Project: 0.75 FTE / 1,300 Hours

Recent Previous Employment:

* April 1997-Present: District Manager and Model Watershed Technical Lead, Columbia Conservation District, Dayton, WA.
* April 1995-April 1996: Laborer, Equipment Operator, 1996 flood recovery efforts, and agricultural production.
* October 1981-April 1996: Wildlife Area Manager, Washington Department of Fish and Wildlife - managed wildlife area for production and restoration of fish and wildlife habitat and compatible public use; developed and implemented annual and long-range management plans and budgets; and acted as liaison with the public, landowners, and agency representatives.
* February 1977-October 1981: Assistant Superintendent, Ellensburg Game Farm - Primary assistant to superintendent, responsible for organizing and supervising seasonal and voluntary work crews; acted as liaison with public, landowner and agency representatives.
* March 1972-February 1977: Superintendent, Walla Walla Game Farm - Developed and implemented annual and long-term management plans and budgets; hired, supervised and trained seasonal employees; supervised voluntary work crews; acted as liaison with public, landowner and agency representatives.

Expertise: Self-motivated individual with extensive experience in working with the general public, landowners and government agencies on natural resource management issues. Positive personality with flexibility to adjust to changing work environments. Ability to objectively listen to concerns of various parties and develop a proactive working solution. Very proactive for on-the-ground implementation and results while addressing various concerns.

Resume for Duane Bartels
Pataha Creek Model Watershed Technical Lead

Eduation: Associate Degree in Electronics, Spokane Community College, Spokane, WA, 1967

Current Employer: Pomeroy Conservation District, Pomeroy, WA. Other current employment is as a self-employed wheat farmer.

Current Responsibilities: Manages the everyday operation of the Pomeroy Conservation District. This includes handling all the districts finances and record keeping. Coordinates and implements the district plan for the short and long-term conservation of our district's natural resources. Oversees the district cost-share program for soil conservation through erosion reduction practices and the improvement of fish and wildlife habitat through improved riparian management and instream fish habitat improvement. Since 1993, directed the research and planning of the Pataha Creek Model Watershed Plan, and directed implementation of many practices set forth in the plan. Works to direct technical assistance provided by the NRCS to get the most effective conservation and restoration practices on the ground.

FTE / Hours Spent on This Project: 0.75 FTE / 1,300 Hours

Previous Recent Employment:

* 1989-Present: District Manager, Pomeroy Conservation District
* 1987-1989: Truck Driver
* 1985-1994: Owner / Operator of Convenience Store
* 1983-1985: Soil Technician for Soil Conservation Service
* 1966-1983: Self-employed wheat and alfalfa farmer

Expertise: Involved in the conservation movement since 1966. Elected to district board as supervisor in 1976 until 1983. Served as chairman of the board for five of those years until going to work for the Soil Conservation Service as a Soil Technician. As a Soil Technician, received training in soil sciences, basic engineering and other courses pertaining to soil and water conservation. Born and raised in Garfield County, and have lived here practically all my life. Have actively farmed since 1966 when I took over the family farm. Having grown up in the county, I know the farmers personally and am familiar with their operations. This has helped me facilitate the development of the model watershed plan by getting local farmers to participate in the watershed planning process, and also to get projects installed on the ground and in-stream. I have attended many conferences on no-till farming, and have used the practice myself over the last seven years. I have helped introduce the concept to many farmers in the county, and many of them are adapting no-till as part of their farming operations.

Section 10. Information/technology transfer

The districts produce quarterly model watershed newsletters with a circulation to watershed residents and agency representatives that relates information regarding the watershed and projects that have been implemented. The districts are very active with local schools, and provide hands-on workshops and tours for the students.

Local television and newspapers have been utilized in each watershed. Articles about the projects have also appeared in BPA's Circuit and Journal newsletters.